AMENDMENT TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method for producing gas from a subterranean formation, wherein the subterranean formation includes a coal seam, comprising the steps of:

optimizing a number, placement and size of a plurality of fractures in the subterranean formation so as to determine a maximum interference spacing between the plurality of fractures by (a) determining one or more geomechanical stresses induced by each fracture based on the dimensions and location of each fracture, (b) determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures, and (c) determining a predicted stress field based on the geomechanical stresses induced by each fracture;

drilling at least one substantially vertical well bore intersecting the coal seam[[,]];

drilling at least one substantially horizontal well bore disposed substantially within the coal seam and exiting from the at least one substantially vertical well bore[[,]]; and

fracturing the coal seam along the at least one substantially horizontal well bore using a hydrajetting tool to produce [[a]] the plurality of fractures, wherein the plurality of fractures is spaced according to the maximize interference spacing between the plurality of fractures and wherein the plurality of fractures enhances the production of gas from the coal seam of the subterranean formation.

2. (Original) The method of claim 1, further comprising the step of casing the at least one substantially vertical well bore.

3. (Original) The method of claim 1, further comprising the step of casing the at least one substantially horizontal well bore.

4. (Original) The method of claim 1, further comprising the step of lining the at least one substantially horizontal well bore.

5. (Original) The method of claim 1, further comprising the step of removing water from the coal seam of the subterranean formation.

6. (Original) The method of claim 1, further comprising the step of inserting logging equipment into the at least one substantially vertical well bore.

7. (Original) The method of claim 1, further comprising the step of inserting logging equipment into the at least one substantially horizontal well bore.

8. (Original) The method of claim 1 wherein the at least one substantially vertical well bore terminates at or above the coal seam.

9. (Original) The method of claim 1 wherein the at least one substantially vertical well bore terminates below the coal seam.

10. (Original) The method of claim 9 further comprising an additional step of plugging the at least one substantially vertical well bore at or above the coal seam before the step of drilling at least one substantially horizontal well bore.

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Original) A method for producing gas from a subterranean formation, wherein the subterranean formation includes a coal seam, comprising the steps of:

optimizing a number, placement and size of a plurality of fractures in the subterranean formation so as to determine a maximum interference spacing between the plurality of fractures by (a) determining one or more geomechanical stresses induced by each fracture based on the dimensions and location of each fracture, (b) determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures, and (c) determining a predicted stress field based on the geomechanical stresses induced by each fracture;

drilling at least one substantially vertical well bore intersecting the coal seam[[,]];

logging the subterranean formation by inserting logging equipment into the at least one substantially vertical well bore[[,]];

casing the at least one substantially vertical well bore[[,]];

drilling a plurality of substantially horizontal well bores disposed substantially within the coal seam and exiting from the at least one substantially vertical well bore, wherein the plurality of substantially horizontal well bores is spaced to maximize interference between the substantially horizontal well bores[[,]];

lining or casing the plurality of substantially horizontal well bores[[,]]; and

fracturing the coal seam along the plurality of substantially horizontal well bores using a hydrajetting tool to produce [[a]] the plurality of fractures, wherein the plurality of fractures is spaced according to the maximize interference spacing between the plurality of fractures and wherein the plurality of fractures enhances the production of gas from the coal seam of the subterranean formation.

30. (Original) The method of claim 29, further comprising the step of removing water from the coal seam of the subterranean formation.

31. (Original) The method of claim 29 wherein the at least one substantially vertical well bore terminates at or above the coal seam.

32. (Original) The method of claim 29 wherein the at least one substantially vertical well bore terminates below the coal seam.

33. (Original) The method of claim 32 further comprising an additional step of plugging the at least one substantially vertical well bore at or above the coal seam before the step of drilling the plurality of substantially horizontal well bores.

34. (Currently Amended) A method for producing gas from a subterranean formation, wherein the subterranean formation includes a coal seam, comprising the steps of:

optimizing a number, placement and size of a plurality of fractures in the subterranean formation so as to determine a maximum interference spacing between the plurality of fractures by (a) determining one or more geomechanical stresses induced by each fracture based on the dimensions and location of each fracture, (b) determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures, and (c) determining a predicted stress field based on the geomechanical stresses induced by each fracture;

drilling at least one substantially vertical well bore intersecting the coal seam[[,]];

logging the subterranean formation by inserting logging equipment into the at least one substantially vertical well bore[[,]];

casing the at least one substantially vertical well bore[[,]];

drilling a plurality of substantially horizontal well bores disposed substantially within the coal seam and exiting from the at least one substantially vertical well bore, wherein the plurality of substantially horizontal well bores forms at least one fork pattern ~~and wherein the plurality of substantially horizontal well bores is spaced to maximize interference between the substantially horizontal well bores,~~;

lining or casing the plurality of substantially horizontal well bores[[,]]; and

fracturing the coal seam along the plurality of substantially horizontal well bores using a hydrajetting tool to produce [[a]] the plurality of fractures, wherein the plurality of fractures is spaced according to the maximize interference spacing between the plurality of fractures and wherein the plurality of fractures enhances the production of gas from the coal seam of the subterranean formation.

35. (Original) The method of claim 34, further comprising the step of removing water from the coal seam of the subterranean formation.

36. (Original) The method of claim 34 wherein the at least one substantially vertical well bore terminates at or above the coal seam.

37. (Original) The method of claim 34 wherein the at least one substantially vertical well bore terminates below the coal seam.

38. (Original) The method of claim 37 further comprising an additional step of plugging the at least one substantially vertical well bore at or above the coal seam before the step of drilling the plurality of substantially horizontal well bores.

39. (Currently Amended) A method for producing gas from a subterranean formation, wherein the subterranean formation includes a coal seam, comprising the steps of:

optimizing a number, placement and size of a plurality of fractures in the subterranean formation so as to determine a maximum interference spacing between the plurality of fractures by (a) determining one or more geomechanical stresses induced by each fracture based on the dimensions and location of each fracture, (b) determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures, and (c) determining a predicted stress field based on the geomechanical stresses induced by each fracture;

drilling at least one substantially vertical well bore intersecting the coal seam[[,]];

logging the subterranean formation by inserting logging equipment into the at least one substantially vertical well bore[[,]];

casing the at least one substantially vertical well bore[[,]];

drilling a plurality of substantially horizontal well bores disposed substantially within the coal seam and exiting from the at least one substantially vertical well bore, wherein the plurality of substantially horizontal well bores forms a radial pattern; ~~and wherein the plurality of substantially horizontal well bores is spaced to maximize interference between the substantially horizontal well bores,~~

lining or casing the plurality of substantially horizontal well bores[[,]]; and

fracturing the coal seam along the plurality of substantially horizontal well bores using a hydrajetting tool to produce [[a]] the plurality of fractures, wherein the plurality of fractures is spaced according to the maximize interference spacing between the plurality of fractures and wherein the plurality of fractures enhances the production of gas from the coal seam of the subterranean formation.

40. (Original) The method of claim 39, further comprising the step of removing water from the coal seam of the subterranean formation.

41. (Original) The method of claim 39 wherein the at least one substantially vertical well bore terminates at or above the coal seam.

42. (Original) The method of claim 39 wherein the at least one substantially vertical well bore terminates below the coal seam.

43. (Original) The method of claim 42 further comprising an additional step of plugging the at least one substantially vertical well bore at or above the coal seam before the step of drilling the plurality of substantially horizontal well bores.

44. (New) The method of claim 1 wherein the step of optimizing a number, placement and size of a plurality of fractures occurs before the step of fracturing the coal seam.

45. (New) The method of claim 1 further comprising the steps of :

determining a cost-effective number of fractures; and

determining an optimum number of fractures, where the optimum number of fractures is the maximum cost-effective number of fractures that does not exceed the geomechanical maximum number of fractures.

46. (New) The method according to claim 1, further comprising the step of spacing the fractures a uniform distance from each other.

47. (New) The method according to claim 1, further comprising the step of creating the fractures with a uniform size.

48. (New) The method according to claim 1, further comprising the step of repeating steps (a), (b), and (c) after each fracture is created.

49. (New) The method according to claim 48, wherein the repeating step comprises the steps of gathering and analyzing real-time fracturing data for each fracture created.

50. (New) The method according to claim 49, wherein the gathering of real-time fracturing data comprises the steps of:

(i) measuring a fracturing pressure while creating a current fracture;

(ii) measuring a fracturing rate while creating the current fracture; and

(iii) measuring a fracturing time while creating the current fracture.

51. (New) The method according to claim 50, wherein the measuring of fracturing pressure is accomplished using one or more transducers located at a wellhead of the at least one substantially vertical well bore.

52. (New) The method of claim 50, wherein the measuring of fracturing pressure is accomplished using one or more transducers located down hole.

53. (New) The method according to claim 50, wherein the fracturing pressure is measured in a tubing.

54. (New) The method according to claim 49, wherein analyzing of real-time fracturing data comprises the steps of:

determining a new stress field, based on the real-time fracturing data; and

comparing the new stress field with the predicted stress field.

55. (New) The method according to claim 54, further comprising the step of decreasing the number of fractures in response to the real-time fracturing data.

56. (New) The method according to claim 54, further comprising the step of increasing the distance between the fractures in response to the real-time fracturing data.

57. (New) The method according to claim 54, further comprising the step of adjusting the size of the fractures in response to the real-time fracturing data.